

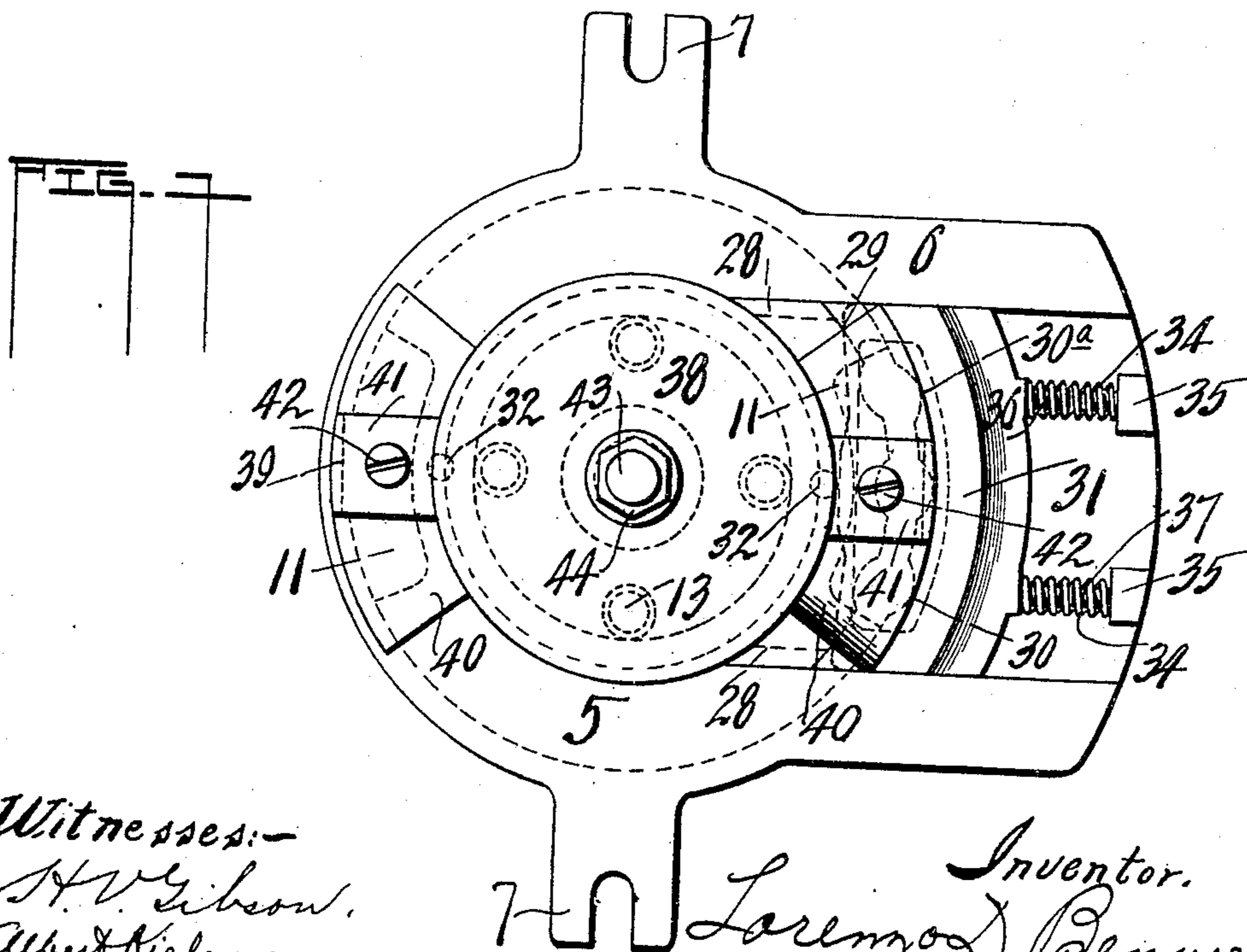
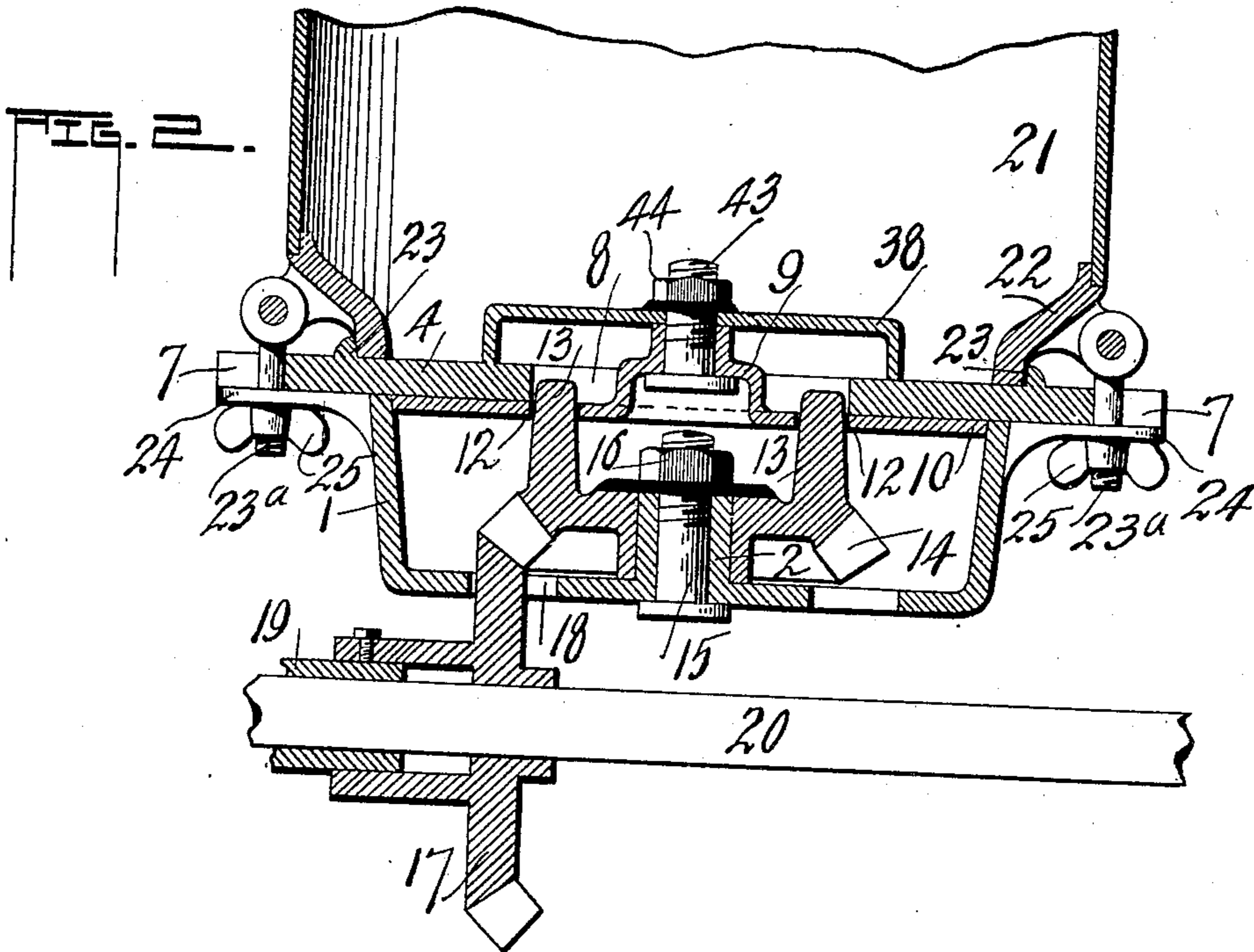
No. 832,031.

PATENTED OCT. 2, 1906.

L. D. BENNER.  
SEED PLANTER.

APPLICATION FILED JULY 12, 1905.

3 SHEETS—SHEET 1.



Witnesses:  
H. V. Gibson.  
Albert Kiefer.

Inventor.  
Lorenzo D. Benner,  
By Cha. W. LaPorte.

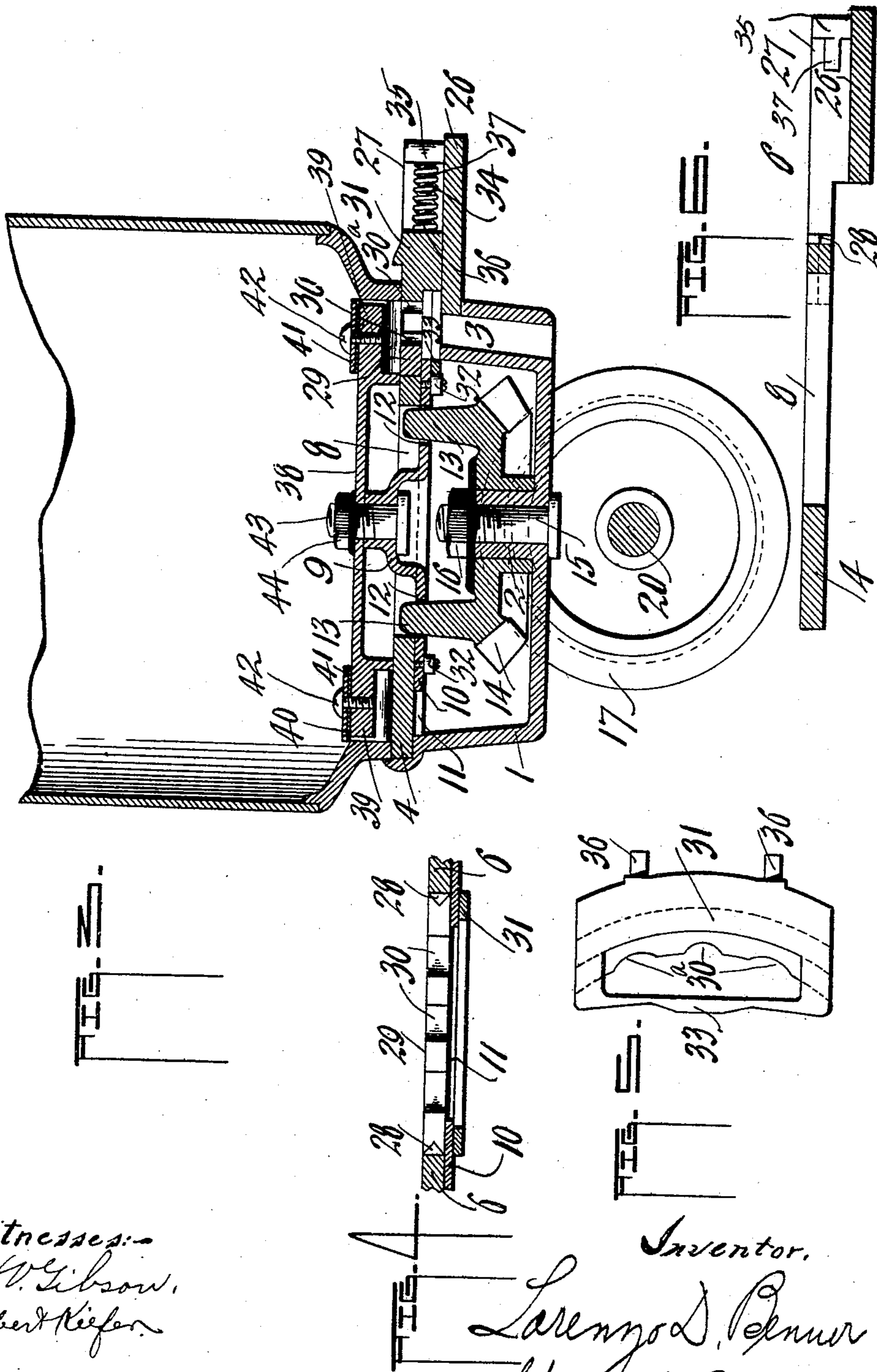
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3 SHEETS—SHEET 2.



Witnesses:  
H. V. Gibson,  
Albert Kiefer.

Inventor,  
Lorenz D. Benner  
By Charles Le Conte Atty.

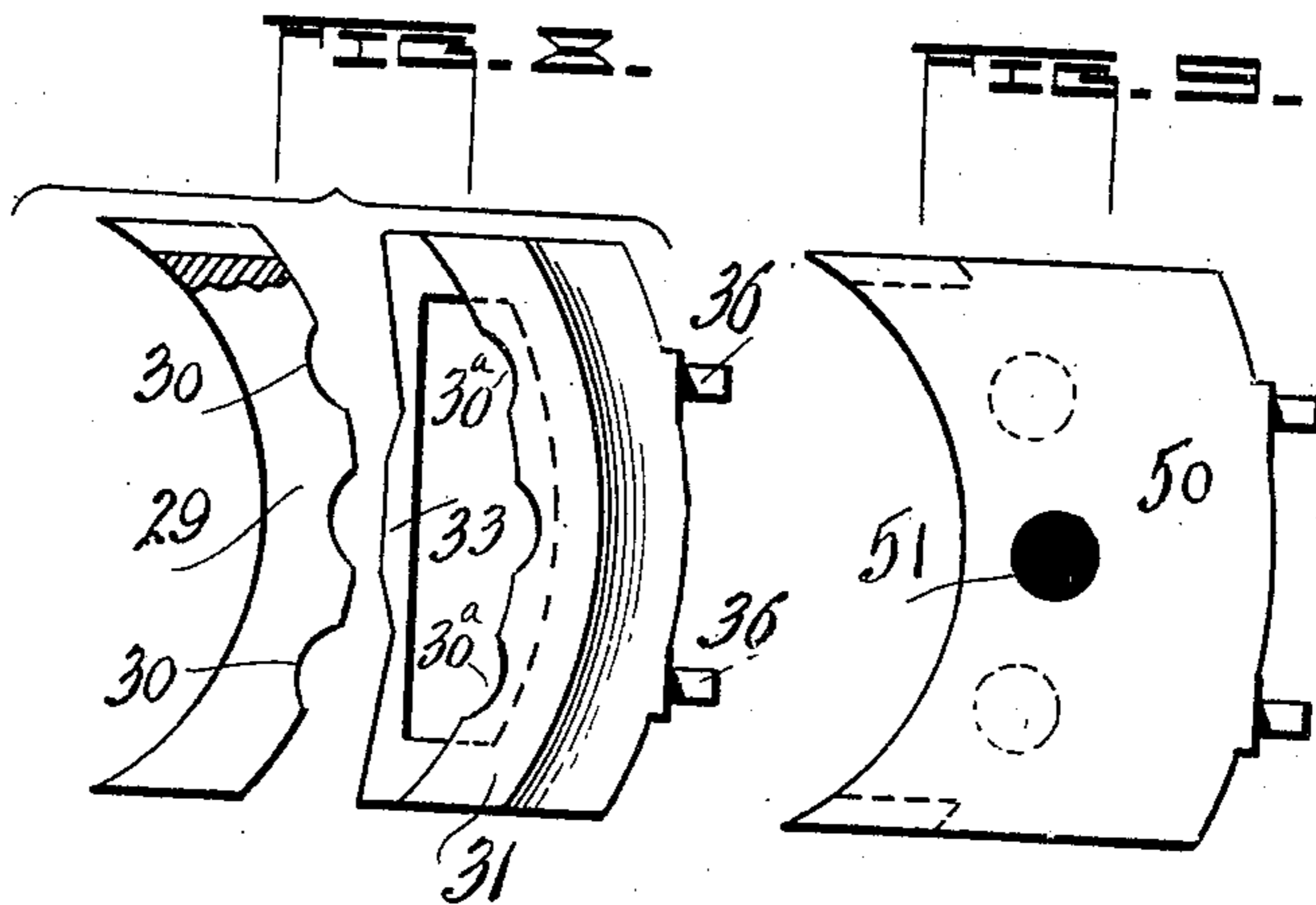
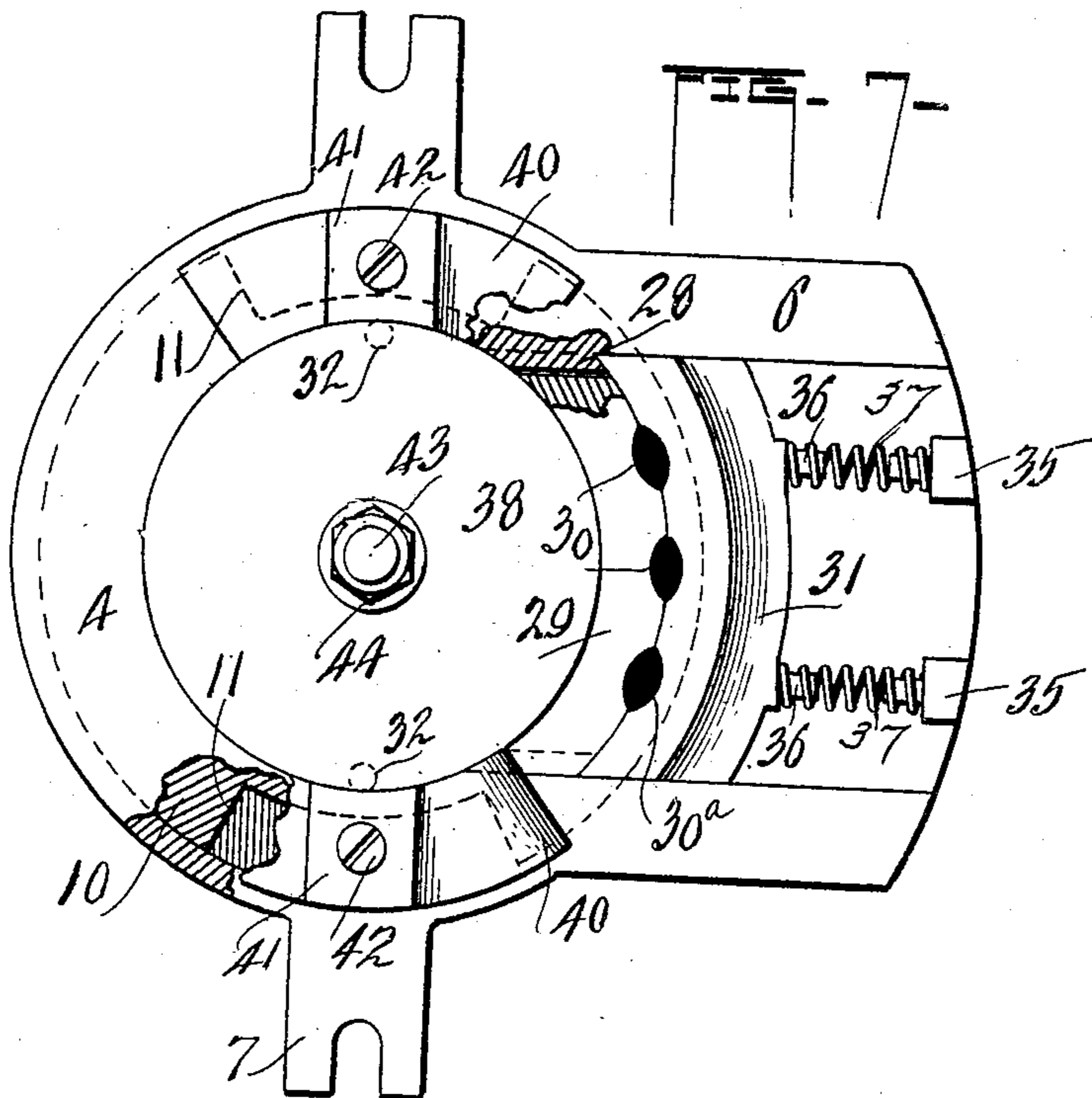
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L. D. BENNER.  
SEED PLANTER.

APPLICATION FILED JULY 12, 1905.

3 SHEETS—SHEET 3.



Witnesses:  
Anderson  
H. V. Gibson

Inventor.  
Lorenzo D. Benner  
By Chas. M. LaPorte  
Atty.

# UNITED STATES PATENT OFFICE.

LORENZO D. BENNER, OF PEORIA, ILLINOIS.

## SEED-PLANTER.

No. 832,031.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed July 12, 1905. Serial No. 269,435.

*To all whom it may concern:*

Be it known that I, LORENZO D. BENNER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Seed-Planters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to certain new and useful improvements in corn-planters and similar machines, and relates particularly to the seed feeding or dropping devices thereof.

The object which I have in view in the present invention is to obviate the use of a revoluble seed-plate.

The invention has for its further object a seed-receptacle provided with a seed-conduit or discharge-opening, of a pair of plates disposed over said opening or conduit in the receptacle and having one or more corresponding notches or seed-cells, preferably in their matching faces, one of said plates adapted to have a fixed position and the other movable.

The invention comprises, further, in combination with the plates aforesaid, means revolubly mounted in the said seed-receptacle adapted to intermittently shift the movable plate aforesaid and means for automatically returning said movable plate to its normal position alternately with the movement of the revoluble means for shifting said plate.

The invention consists, further, of a pair of seed-plates, one fixed and the other movable, each of said plates provided with corresponding notched faces, the notches of said plates when their matching faces are adjacent forming seed-cells for the same.

For a further and full description of the invention herein and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the base of a seed-receptacle or hopper and showing my improvements therein. Fig. 2 is a vertical sec-

tional view through a seed-containing receptacle or hopper, its base, and the seeding mechanism therein. Fig. 3 is a vertical sectional view of a hopper and the seeding devices, being at right angles to that shown in Fig. 2. Fig. 4 is an elevation of one of the plates having the seed-cells, a section of a revoluble plate, and a portion of the movable seed-plate. Fig. 5 is a bottom plan view of the movable plate having the seed-cells. Fig. 6 is a detail in cross-section of the covering-plate. Fig. 7 is a plan view of the parts shown in Fig. 1, but illustrates the revoluble parts of the device as having made one-quarter of a revolution and the seed-plates in juxtaposition and with parts of the figure shown in cross-section. Fig. 8 shows a top plan view of two seed-plates and one of said plates partially in section, and Fig. 9 illustrates a modified form of seed-plate wherein a single seed-plate is used and the same provided with one or more seed-cells.

It will become obvious from the following description, also from an examination of the drawings, that no attempt has been made to show any of the parts of the planter other than those which relate to the invention herein and the component parts thereof. The ordinary frame, shanks, valve mechanism, and other necessary features in all planters are to a more or less extent well known in this art, and it is not thought necessary to show or describe the same here, it being understood that the invention here described and shown is applicable to various styles of corn-planters.

In the drawings, 1 denotes a base provided with a short central tubular stem 2, extending upwardly in the same, and to one side the base is provided with a seed conduit or opening 3.

4 denotes a covering-plate for the said base, having the substantially annular ring-shaped portion 5, from which extends the plate extension 6, and from said ring portion of the plate 4, upon opposite sides and at right angles to the extension 6, is shown the slotted ears 7. The plate 4 has the central opening 8, through which extends a tubular or dome-shaped extension 9 of a revoluble plate 10, which is disposed in the base 1 in juxtaposition to the covering-plate 4. This plate is provided, preferably, with a pair of oppositely-disposed cut-out portions 11 in the edge thereof, and in the body of said plate, disposed oppositely to each other, is a series

of openings 12, which are disposed within the circle described by the wall of the opening 8 in the covering-plate. Into these openings 12 are carried or disposed stems 13 of a bevel gear-wheel 14, which is revolvably carried on the tubular stem 2 of the base 1 and retained on said stem by means of a threaded stem or bolt 15 and a nut 16, as shown. This gear is employed for rotating the plate 10 described and a cap-plate to be described, and the same is preferably in continuous mesh with a bevel gear-wheel 17, which protrudes through an opening 18 in the bottom of the base 1 and is here shown adjustably carried on one end of a sleeve-shaft 19, revolvable on a shaft 20, which may be termed a "rock-shaft." However, the particular mode of carrying or operating the gear 17 is immaterial in this instance.

21 denotes a portion of the usual hopper or seed-receptacle, and 22 the ring to which the hopper is attached. The ring 22 is supported by the covering-plate 4 and retained in proper position thereon by means of the lips 23 shown on the covering plate, and the ring 22, the covering-plate 4, and base 1 are securely locked together by the bolts 23<sup>a</sup>, pivoted to the ring 22, adapted to engage the slotted ears 24 of the base 1, and 25 represents thumb-nuts for securing the bolts in the position shown.

Referring again to the covering-plate 4, and particularly that portion thereof indicated as 6, the same is shown (see Fig. 6) with the depending shelf portion 26, having the side walls 27, and the walls of the extension intermediate the body of the plate and the shelf portion 26 thereof for a suitable distance is provided with the tapered or V-shaped ridges 28. Having a dovetailed connection with the ridges 28 of the plate 4 is shown a plate 29, having an outer convex periphery provided with one or more concave cut-out portions 30, which serve as one half of seed-cells, through which it is adapted to pass kernels of corn or other seed or grain from the hopper above to and through the conduit 3 in the base 1. Coacting with the plate 29 is a movable plate 31, reciprocally supported on the shelf portion 26 of the extension of the plate 4 between the walls 27 thereof. The said plate 31 has a concave inner edge conforming to the convex face of the plate 29, provided with one or more concave cut-out portions 30<sup>a</sup>, corresponding with the cut-out portions 30 of the plate 29, so that when the two plates abut the combined cut-out portions 30 and 30<sup>a</sup> of each form seed-cells. It is intended at intervals to move the plate 31 outwardly and away from the plate 29, so as to separate the sections of the seed-cells and release any and all grains therein, which will find their way to the conduit 3. Prior to moving the plate 31 any grains or

kernels deposited in the seed-cells of the com-

bined plates 29 and 31 will lodge on the revolvable plate 10, and in moving the plate 31 the plate 10 will ride from beneath the plates 29 and 31, so as to expose one or the other of the slots or cut-out portions 11 of the plate 10, which permits the seed or kernels to drop into the conduit 3.

For moving the plate 31 outwardly I have provided the rollers 32, secured to and beneath the revolvable plate 10. It is adapted in the rotation of this plate to have the rollers intermittently and alternately engage with an extension 33 of the plate 31, which is movable with the plate 31 back and forth beneath the plate 10, and in so doing forces the plate 31 outwardly, and simultaneously with such movement of the plate 10, the cut-out portions or slots 11 of the plate 10 pass beneath the seed-cells aforesaid and permit the seed or kernels therein to pass through such slots 11 to the conduit 3. The moving away of the rollers 32 from the extension 33, of the plate 31 will permit said plate to return to its normal position. This I accomplish by means of a pair of coil-springs 34, which are disposed between the outer edge of the plate 31 and two lugs 35, extending up from the shelf portion 26 of the plate 4, said springs being preferably coiled about short extensions 36 and 37 of the plate 4 and lugs 35, respectively. The outward movement of the plate compresses the springs, and the release of the plate by the moving away of the roller of the rotary plate aforesaid allows the springs to automatically return the plate, as herein provided.

In making the rotary plate 10 with two cessity for two such roller, as 32, which will cut-out portions, such as 11, there is only necessity for the plate 31 to be reciprocated twice in each revolution of the plate 10; but it is to be understood there is no limitation placed on the number of cut-out portions 11 in the plate 10 and that any modification thereof will be carried out in the parts cooperating therewith. It is also to be understood that no limitation is placed on the number or the size of the cut-out portions in the plates 29 and 31 and that it is intended to make these plates interchangeable as well as detachable, so that if it is desired to change the form of the seed-cells, the size of the same, or the number of cells to be used other plates may be substituted for those shown, making the plates herein interchangeable.

There is provided in connection with the improvements here described and shown a revolvable cap-plate 38, substantially cup-shaped and inverted, being disposed above the covering-plate 4 and the central opening 8 therein. This cap-plate is provided with a pair of oppositely-disposed lateral extensions 39, each of which support a cut-off, (indicated as 40,) which overlies the cut-out portions 11 in the revolvable plate 10 and retained in posi-

tion on the extensions 39 by means of the caps 41 and the screws 42, as shown. This form of seed-plate or feedway from the seed-receptacle to the base and from there to the shank (not shown) obviates the necessity of a knocker, as the cut-offs do this work and also serve as a temporary covering-plate to prevent any seed or grain finding their way to the seed-cells when the plates are separated. The cap-plate 38 and the revoluble plate 10 are retained in operative connection by means of a threaded stem or bolt 43, which is passed up through the dome or tubular portion 9 of the plate 10 and the cap-plate and retained in place by means of a nut 44, as shown. This manner of fastening the plate 10 and cap-plate 38 together while it fixes the parts is not such a fastening as will cause the parts to bind on the covering plate 4.

In Fig. 9 a single seed-plate (indicated as 50) is shown, which may be substituted for the two seed-plates 29 and 31, and the said seed-plate is shown having a single cell 51, and in dotted lines is indicated additional cells, which illustrates that a single plate may have one or more seed-cells. The modification in Fig. 9 goes to show that the seed-plates may be interchanged—that is, a single plate may be used or one or more plates may be used, one of which is movable.

It is obvious from the foregoing that various changes may be made in the construction of the seed-feeding devices herein, and particular attention is directed to the plates 29 and 31, for which may be substituted a single plate with one or more seed-cells of any desired shape and, like the plates 29 and 31, may be detachable and interchangeable. The devices shown are preferred, the seed or grain being handled with a greater convenience, the idea being to separate the seed-cells as suggested; but in this I do not desire to confine myself. In the event of making the plate all one piece the revoluble plate would have to be modified accordingly.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a seed-planter, the combination of a seed-receptacle, a seed-plate slidably mounted therein, and a revoluble member adapted to operate said seed-plate.

2. In a seed-planter, the combination of a seed-receptacle, a seed-plate comprising a stationary section and a movable section, and a revoluble plate adapted to operate said movable section.

3. In a seed-planter, a seed-receptacle, a seed-plate consisting of a movable and an immovable section, and a revoluble member adapted to actuate the movable seed-plate section a plurality of times during a complete revolution thereof.

4. In a seed-plate, a seed-receptacle, a non-revoluble seed-plate of a plurality of sections

provided with suitable seed-cells, and a revoluble cap-plate carrying one or more suitable cut-offs.

5. In a seed-planter, a seed-receptacle, a seed-plate consisting of two sections, one adapted to be moved toward and from the other and both of said sections having matching cell portions, a revoluble plate adapted to move said movable seed-plate section and provided with cut-out portions adapted to coincide with the cell portions of said plates when the movable plate is actuated.

6. In a seed-planter, a seed-receptacle, a seed-plate consisting of two sections, one adapted to be moved toward and from the other and both of said sections having matching cell portions, a revoluble member adapted to move said movable seed-plate section, a revoluble cap-plate, a plurality of cut-offs carried by said cap-plate, and connections between the cap-plate and revoluble member aforesaid.

7. In a seed-planter, a seed-receptacle, a non-revoluble seed-plate with seed-discharging cells, and a revoluble member having cut-offs which operate above the cells of the seed-plate.

8. In a seed-planter, a seed-receptacle, a seed-plate consisting of a movable and an immovable section, and a revoluble member having cut-offs which operate above the cells of the seed-plate.

9. In a seed-planter, a seed-receptacle, a seed-plate consisting of a slidable and an immovable section, means for separating the sections, and a revoluble member having covering-plates which momentarily coincide with the seed-plate as the sections thereof are separated.

10. In a seed-planter, a seed-receptacle, a seed-plate consisting of a slidable and an immovable section, means for moving the slidable section, and a revoluble member having a plurality of cut-offs adapted to coincide and cover the cells of the seed-plate as the slidable section is moved.

11. In a seed-planter, a seed-receptacle, a non-revoluble seed-plate having seed-cells, and a revoluble member having a plurality of cut-offs adapted to coincide and cover the cells of the seed-plate at predetermined intervals.

12. In a seed-planter, the combination of a seed-receptacle, a slidable and interchangeable seed-plate mounted therein, and a revoluble member adapted to operate said seed-plate.

13. In a seed-planter, the combination of a seed-receptacle, a non-revoluble seed-plate consisting of a plurality of interchangeable sections mounted in said receptacle, and a revoluble member adapted to operate one of said sections.

14. In a seed-planter, the combination of a seed-receptacle, a non-revoluble seed-plate

consisting of a plurality of detachable and interchangeable sections, and a revoluble member for operating one of said sections.

15. In a seed-planter, a seed-receptacle, a seed-plate consisting of two interchangeable sections, one slidable and the other immovable, and means for moving the slidable section.

16. In a seed-planter, a seed-receptacle, a seed-plate consisting of two interchangeable sections having abutting edges provided with a plurality of matching seed-cells, one section slidable and the other immovable, and means for moving the slidable section.

17. In a seed-planter, a seed-receptacle, a seed-plate consisting of two interchangeable sections, one slidable and the other immovable, a revoluble member for sliding the movable plate-section, and yielding means for automatically returning said section to its normal position.

18. In a seed-planter, a seed-receptacle, a seed-plate consisting of two interchangeable sections, one slidable and the other immovable, a revoluble member for sliding the movable section, springs for returning the said section to its normal position, and a revoluble member having cut-offs adapted to coincide with the said sections as the slidable section is moved away from the immovable section.

19. In a seed-planter, a seed-receptacle, a seed-plate, an overlying revoluble cap-plate, and a plurality of cut-offs attached thereto.

20. In a seed-planter, a seed-receptacle, a seed-plate, a revoluble cap-plate provided with a plurality of lateral extensions, and cut-offs attached to said extensions.

21. In a seed-planter, a seed-receptacle, a stationary covering-plate, a revoluble plate beneath said covering-plate, a revoluble cap-plate connected to said first-mentioned revoluble plate, and cut-offs attached to said cap-plate.

22. In a seed-planter, a seed-receptacle, a stationary covering-plate, a revoluble plate beneath said covering-plate means for rotating said revoluble plate, a cap-plate revoluble above the covering-plate, means connecting the cap and revoluble plate, and a plurality of cut-offs attached to said cap-plate.

23. In a seed-planter, a seed-receptacle, a stationary covering-plate, a revoluble plate beneath said covering-plate, means for rotating said revoluble plate, a cap-plate revoluble above the covering-plate, and means connecting the cap-plate and said revoluble plate.

24. In a seed-planter, a seed-receptacle, a seed-plate support, a seed-plate comprising two sections, one being slidable, a revoluble member disposed beneath the plate-support, means carried thereby for engaging and moving said slidable plate-section, and means for rotating said revoluble member.

25. In a seed-planter, a seed-receptacle, a seed-plate support, a seed-plate comprising two sections, one being slidable, a revoluble member disposed beneath the plate-support, means carried thereby for engaging and moving said slidable plate-section, means for rotating said revoluble member, a cap-plate revolubly attached to said revoluble member, and a plurality of cut-offs attached to said cap-plate adapted to coincide with the seed-plate sections when the slidable section is moved.

26. In a seed-planter, a seed-receptacle, a stationary plate having a shelf portion and side walls of said shelf portion, a part of which is provided with a tapered off set, a seed-plate comprising two sections detachably supported on said plate, one dovetailed on the tapered off sets aforesaid, and the other slidable on the shelf portion of said plate.

27. In a seed-planter, a seed-receptacle, a stationary plate having a shelf extension and side walls of said extension, a part of which is provided with a tapered off set, a seed-plate comprising two sections detachably supported on said plate, one dovetailed on the tapered off sets aforesaid, the other slidable on the shelf extension of said plate, and means for moving said slidable section of the seed-plate at predetermined intervals.

28. In a seed-planter, a seed-receptacle, a stationary plate adapted to support a seed-plate, and a non-revoluble seed-plate of a plurality of sections detachably supported on the stationary plate to one side of the center thereof.

29. In a seed-planter, a seed-receptacle, a stationary plate adapted to support a seed-plate, a non-revoluble seed-plate of a plurality of sections detachably supported on the stationary plate to one side of the center thereof, a revoluble cap-plate, and cut-offs attached thereto adapted to coincide with the seed-plate, in a manner specified.

30. In a seed-planter, a seed-receptacle, a stationary plate adapted to support a seed-plate, a seed-plate comprising two sections detachably supported on the stationary plate, to one side of the center thereof, one of said sections slidable, means revoluble in the said receptacle for intermittingly moving said slidable section of the said seed-plate.

31. In a seed-planter, a seed-receptacle, a seed-plate comprising two sections having matching seed-cells, and one of said sections slidably supported, the said slidable section provided with an extension, a revoluble member supported in the said receptacle, and a plurality of rollers secured to said member adapted to engage the extension of the slidable section of the seed-plate for moving the same.

32. In a seed-planter, the combination of a receptacle, a non-revoluble seed-plate

mounted in said receptacle, a revoluble plate provided with a plurality of cut-out portions adapted to coincide with the cells of said seed-plate, a revoluble plate provided with a plurality of cut-offs adapted to overlies and coincide with the cells of said seed-plate, the cut-offs of the first-mentioned plate adapted to move in unison with the cut-out portions of the other plate and to simultaneously coincide with the cells of the seed-plate.

33. In a seed-planter, the combination of a receptacle, a non-revoluble seed-plate mounted therein, a revoluble plate adapted to rotate beneath the cells of the seed-plate and provided with cut-out portions adapted to coincide therewith, a revoluble plate provided with cut-offs adapted to rotate above the seed-plate and to coincide with the cells thereof, the cut-offs of the upper plate overlying and adapted to rotate in unison with the cut-out portions in the lower plate, and the body portion of said lower plate forming

a temporary bottom for the cells of the seed-plate during the rotation of the upper and lower plates.

34. In a seed-planter, the combination of a receptacle, a non-revoluble seed-plate, an intermittently-revoluble plate provided with cut-out portions adapted to coincide with the cells of the seed-plate, the body of said revoluble plate intermediate the cut-out portions thereof adapted to form a temporary bottom for the cells of the seed-plate, during the rotation of said revoluble plate, and cut-offs rotatably mounted above the seed-plate and adapted to coincide with the cells thereof simultaneously with the cut-out portions of the revoluble plate aforesaid.

In testimony whereof I affix my signature in presence of two witnesses.

LORENZO D. BENNER.

Witnesses:

ROBERT N. McCORMICK,  
H. V. GIBSON.